

## ADJUSTABLE LOW DROPOUT VOLTAGE REGULATOR

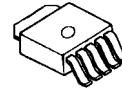
### ■ GENERAL DESCRIPTION

The NJM2887 is an adjustable low dropout voltage regulator with ON/OFF control.

Advanced Bipolar technology achieves low noise, high ripple rejection and low quiescent current.

It is suitable for DVD, FAX and Car Audio.

### ■ PACKAGE OUTLINE

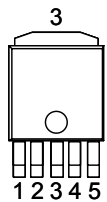


NJM2887DL2

### ■ FEATURES

- High Ripple Rejection      75dB typ. (f=1kHz)
- Output Noise Voltage       $V_{no}=45\mu V_{rms}$
- Output capacitor with 2.2 $\mu F$  ceramic capacitor
- Output Current               $I_o(max.)=500mA$
- High Precision Output       $V_{ref}=1.27V\pm 1.0\%$
- Low Dropout Voltage      0.18V typ. ( $I_o=300mA$ )
- ON/OFF Control
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline              TO-252-5

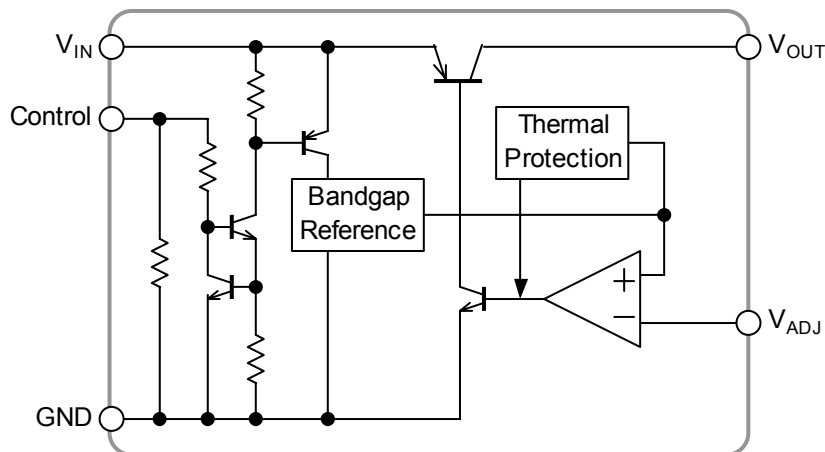
### ■ PIN CONFIGURATION



- PIN FUNCTION
1. CONTROL
  2.  $V_{IN}$
  3. GND
  4.  $V_{OUT}$
  5.  $V_{ADJ}$

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### ■ EQUIVALENT CIRCUIT



# NJM2887

## ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V <sub>IN</sub>	+14	V
Control Voltage	V <sub>CONT</sub>	+14(*note 1)	V
Power Dissipation	P <sub>D</sub>	8(Tc=25°C) 0.8(Ta≤25°C)	mW
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +125	°C

(\*note 1): When input voltage is less than +14V, the absolute maximum control voltage is equal to the input voltage.

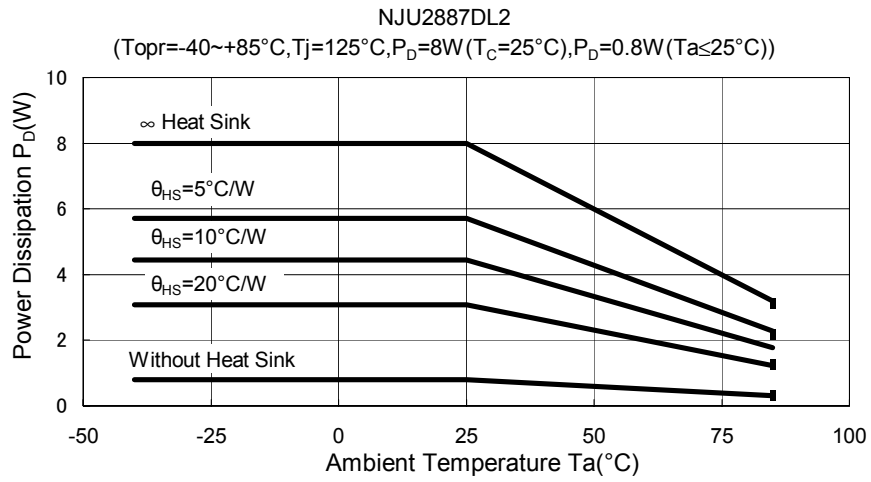
## ■ ELECTRICAL CHARACTERISTICS

(V<sub>IN</sub>=Vo+1V, R1=100kΩ, C<sub>IN</sub>=0.33uF, Co=2.2uF:Vo (Co=4.7uF: Vo≤2.6V), Ta=25°C)

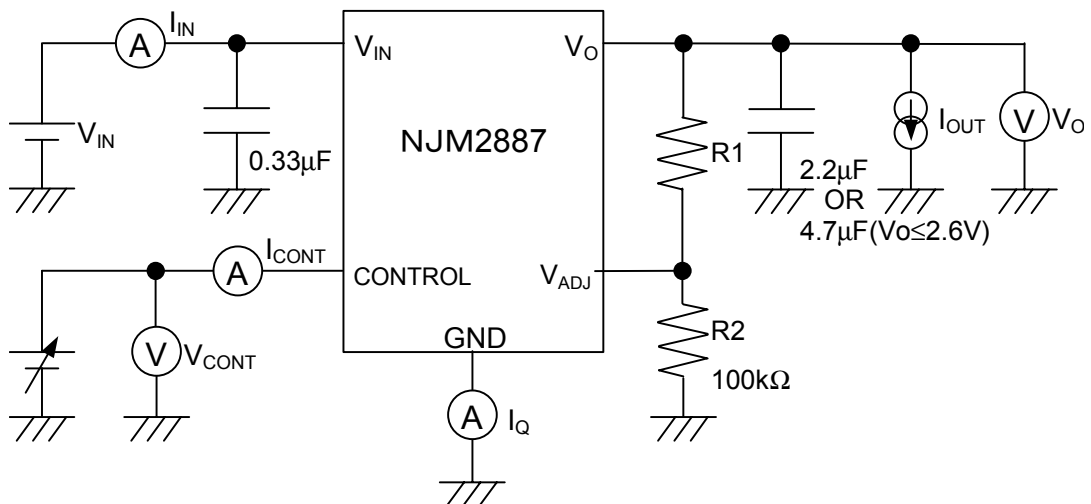
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	Vo	Io=30mA	-1.0%	–	+1.0%	V
Reference Voltage	Vref	Io=30mA	1.257	1.27	1.283	V
Quiescent Current	I <sub>Q</sub>	Io=0mA	–	200	300	uA
Quiescent Current at Control OFF	I <sub>Q(OFF)</sub>	V <sub>CONT</sub> =0V	–	–	100	nA
Output Current	Io	Vo–0.3V	500	650	–	mA
Line Regulation	ΔVo/ΔV <sub>IN</sub>	V <sub>IN</sub> =Vo+1V ~ Vo+6.0V, Io=30mA	–	–	0.10	%/V
Load Regulation	ΔVo/ΔIo	Io=0 ~ 500mA	–	–	0.03	%/mA
Dropout Voltage(*note 2)	ΔV <sub>TO</sub>	Io=300mA	–	0.18	0.28	V
Ripple Rejection	RR	ein=200mVrms, f=1kHz, Io=10mA Vo=3.0V Version	–	75	–	dB
Average Temperature Coefficient of Output Voltage	ΔVo/ΔTa	Ta=0–85°C, Io=10mA	–	±50	–	ppm/°C
Output Noise Voltage	V <sub>NO</sub>	f=10Hz–80kHz, Io=10mA, Vo=3.0V Version	–	45	–	μVrms
Control Voltage for ON-state	V <sub>CONT(ON)</sub>		1.6	–	–	V
Control Voltage for OFF-state	V <sub>CONT(OFF)</sub>		–	–	0.6	V

(\*note 2): Except output voltage less than 2.1V.

## POWER DISSIPATION VS. AMBIENT TEMPERATURE



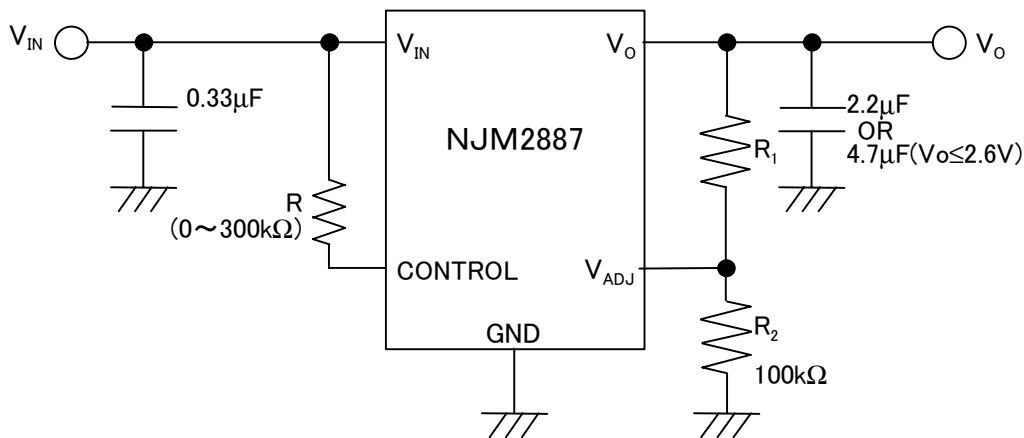
## TEST CIRCUIT



# NJM2887

## ■ TYPICAL APPLICATION

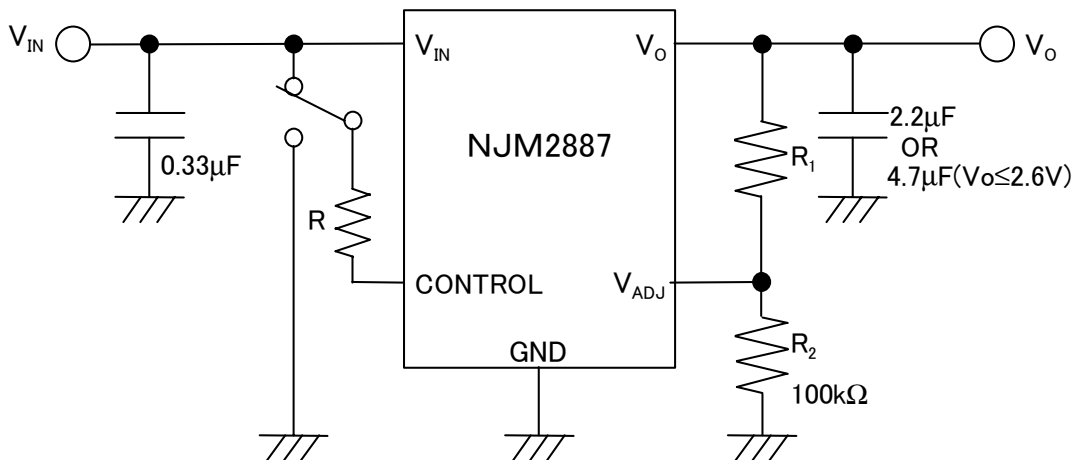
① In the case where ON/OFF Control is not required:



Connect control terminal to  $V_{IN}$  terminal

The quiescent current can be reduced by using a resistance “R”. Instead, it increases the minimum operating voltage. For further information, please refer to Figure “Output Voltage vs. Control Voltage”.

② In use of ON/OFF CONTROL:



State of control terminal:

- “H” → output is enabled.
- “L” or “open” → output is disabled.

**[CAUTION]**

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